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G. W. SCHAUERTE ET AL

BATTERY CUP AND METHOD OF MAKING THE SAME

Filed Sept. 4, 1923

Fig 1.

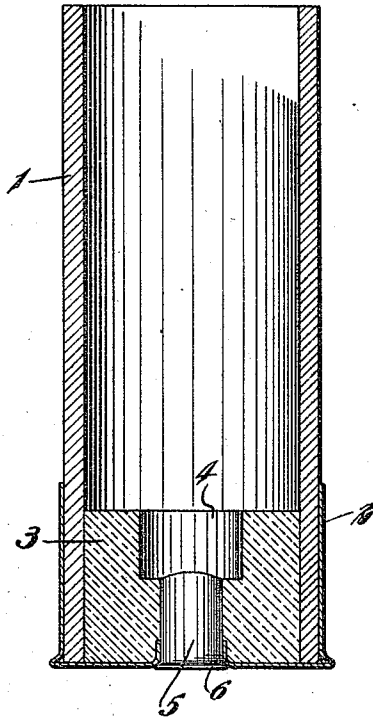


Fig 2.

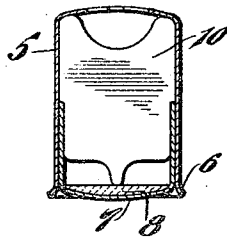
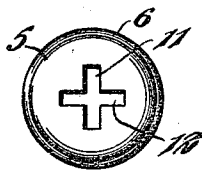
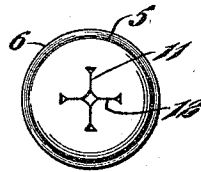


Fig 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. SCHAUERTE AND JOHN M. OLIN, OF EAST ALTON, ILLINOIS, ASSIGNOR TO
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BATTERY CUP AND METHOD OF MAKING THE SAME.

Application filed September 4, 1923. Serial No. 660,867.

To all whom it may concern:

Be it known that we, GEORGE W. SCHAUERTE and JOHN M. OLIN, both citizens of the United States, and residing at East Alton, county of Madison, in the State of Illinois, have invented a certain new and useful Improvement in Battery Cups, and Methods of Making the Same, of which the following is a specification.

This invention relates to cartridges for small arms, and more particularly to battery cups therefor.

A battery cup is provided with a priming composition with which is arranged to cooperate an anvil located within the cup, so that upon detonation of the primer, the gases formed will issue from the cup through a flash hole provided for that purpose, in order to effect ignition of the charge in the cartridge. The primer cavity is, however, partly empty and accordingly where powders of fine grain are used for the cartridge charge as is the case with small arms ammunition, there is a tendency of individual grains of powder sifting through the flash hole and into the partly empty primer cavity, so that when detonation takes place the end of the primer cap carrying the composition is liable to be blown out or fractured or gas is liable to leak around the edge of the cap; this is not only objectionable but also dangerous.

One of the objects of this invention, therefore, is to provide a battery cup having a partly empty primer cavity, the flash end being substantially closed to obstruct the entrance of the charge into the primer cavity but being formed to blow open or enlarge upon detonation of the primer.

Further objects will appear from the detail description taken in connection with the accompanying drawing, in which:

Figure 1 is a section of a shell, somewhat enlarged, showing a battery cup embodying this invention;

Figure 2 is an enlarged section of the battery cup;

Figure 3 is a view of the flash end partially formed; and

Figure 4 is a view of the flash end completely formed.

Referring to the accompanying drawing and more particularly to Figure 1, the cartridge is shown as a shot-shell comprising a

paper tube 1, a base 2 usually of metal and a base wad 3 usually formed of paper and provided with a recess 4 for receiving the battery cup. While for the purpose of illustration the invention is shown as applied to a shot-shell, it will be understood that it may be applied equally to other forms of ammunition, such as metallic cartridges.

Referring now to Figure 2 the battery cup as shown comprises a casing 5 open at one end and provided with a flange 6. In this open end is forced the usual primer cap 7 provided with the usual primer 8. An anvil 10 is positioned within the primer cavity for cooperation with the primer and since this anvil is flat, it leaves a partially empty primer cavity. Upon detonation of the primer, the gases should escape through the flash end of the battery cup and accordingly this battery cup should be constructed so as to allow such issuance of the gases in order to ignite the propelling charge in the cartridge. The flash end should, however, be constructed as to obstruct the entrance of the propelling charge into the primer cavity. In accordance with this invention the flash end, while being substantially closed to obstruct the entrance of the propelling charge into the primer cavity, is formed to blow open or enlarge upon detonation of the primer.

As shown in Figures 3 and 4, the flash end is apertured by being perforated with slits 11 and 12 crossing one another. This operation may be performed by punching which, however, leaves the perforation too large so that sifting of fine powder grains into the cavity may take place. Accordingly after the flash end has been perforated as shown in Figure 3, this end wall is compressed thereby causing the slits to nearly close as shown in Figure 4 in order to substantially close the flash end. This slitting and compressing not only weakens the flash end but also provides flaps. Accordingly while the flash end is substantially closed so as to obstruct the entrance of even fine powder into the primer cavity (it being noted that Figure 4 is considerably enlarged), nevertheless upon detonation of the primer the flash end will blow open or enlarge by opening of the flaps in order to permit the gases to escape from the primer cavity and properly ignite the charge in the

cartridge. It will, therefore, be seen that a battery cup is provided which is simple in construction and economical to manufacture and will perform its desired function, namely, to obstruct the entrance of the propelling charge into the primer cavity while permitting the gases to issue therefrom and ignite the charge.

It will be noted that the flash end of the battery cup is substantially closed, and that this end while adapted to be blown open upon detonation of the primer, offers considerable resistance. This is an advantageous feature for the reason that upon detonation of the primer the gases will accumulate in the primer cavity until the pressure therein rises considerably, and as soon as this pressure has been built up to a point sufficient to rupture the flash end, the hot gases will be suddenly released to the propellant charge. This results in a very hot primer which is especially adapted to ignite a propellant charge of rather difficultly ignitable powder, such as a progressive dense colloided nitro-cellulose powder, particularly when used in a shot shell.

It is obvious that various changes may be made in details without departing from the spirit of this invention; it is, therefore, to be understood that this invention is not to be limited to the specific details shown and described.

Having thus described the invention, what is claimed is:

1. In a cartridge, for small arms and having a fine grain propelling charge, a battery cup having a partly empty primer cavity, the flash end of the battery cup being substantially closed by its metallic wall to obstruct entrance of the charge into the primer cavity but said end wall being weakened to open upon detonation of the primer.

2. In a cartridge for small arms and having a fine grain propelling charge, a battery cup having a partly empty primer cavity, the flash end of the battery cup being substantially closed by its metallic wall to obstruct entrance of the charge into the primer cavity but said end wall being formed to blow open upon detonation of the primer.

3. A shot shell having a fine grain propelling charge and having a partly empty primer cavity whose flash end is obstructed so as to prevent sifting of the charge therein and offer considerable resistance against

the issuance of the gases from the primer cavity.

4. A shot shell having a fine grain propelling charge and having a partly empty primer cavity whose flash end is formed to prevent sifting of the charge therein and to blow open upon detonation of the primer but offers considerable resistance against the issuance of the gases from the primer cavity.

5. A shot shell having a fine grain propelling charge and having a partly empty primer cavity whose flash end is formed to prevent sifting of the charge therein and to provide a firm end wall adapted to open upon detonation of the primer.

6. In a cartridge, a battery cup having a partly empty primer cavity, the flash end being perforated and reformed to substantially close the perforation.

7. In a cartridge, a battery cup having a partly empty primer cavity, the flash end being perforated and said end being compressed to substantially close the perforation.

8. In a cartridge, a battery cup whose flash end is provided with slits crossing each other, said end being compressed to substantially close said slits.

9. In a cartridge, a battery cup having a partly empty primer cavity, the flash end being perforated and reformed to weaken said end and substantially close the perforation.

10. The method of forming battery cups comprising, perforating the flash end of the battery cup, and reforming said end to substantially close the perforation.

11. The method of forming battery cups comprising, perforating the flash end of the battery cup, and reforming said end to weaken said end and substantially close the perforation.

12. The method of forming battery cups comprising, perforating the flash end of the battery cup, and compressing the wall to substantially close the perforation.

13. The method of forming battery cups comprising, slitting the flash end of the battery cup, and compressing the wall to substantially close the slits.

In testimony whereof we affix our signatures this 27th day of July, 1923.

GEORGE W. SCHAUERTE.
JOHN M. OLIN.